

Nature of Matter

Notes

Learning Objective: In writing, SWBAT describe and give examples of the three states of matter, using academic language.

Matter

anything that has mass and takes up space

Property

a description or characteristic of matter

Properties help us identify matter

Examples of properties

- color
- shape
- texture
- smell

3 states of matter

- solid
- liquid
- gas

Solid

matter that has definite shape and volume

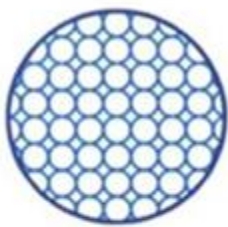


Example: ice

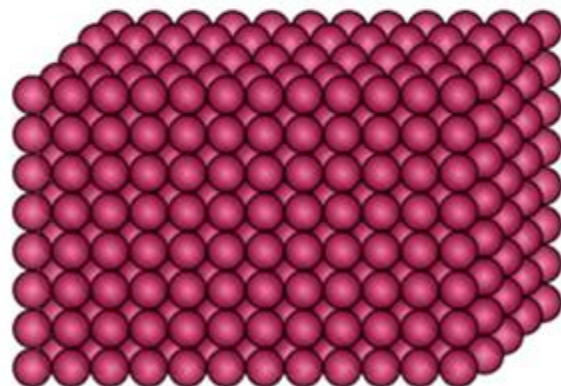
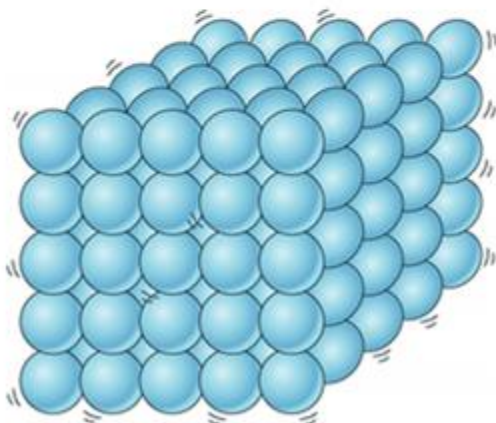
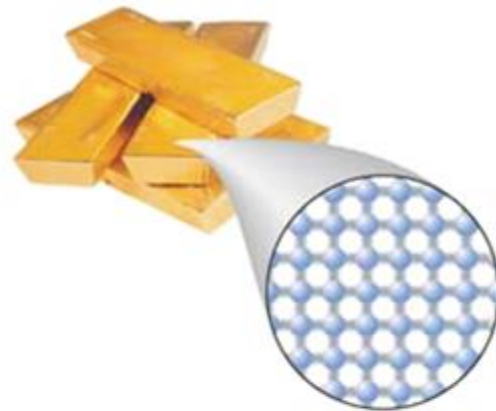
The particles in a solid are packed tightly together and do not change position

The shape and volume do not change

Ice



The particles are close together and cannot move about.



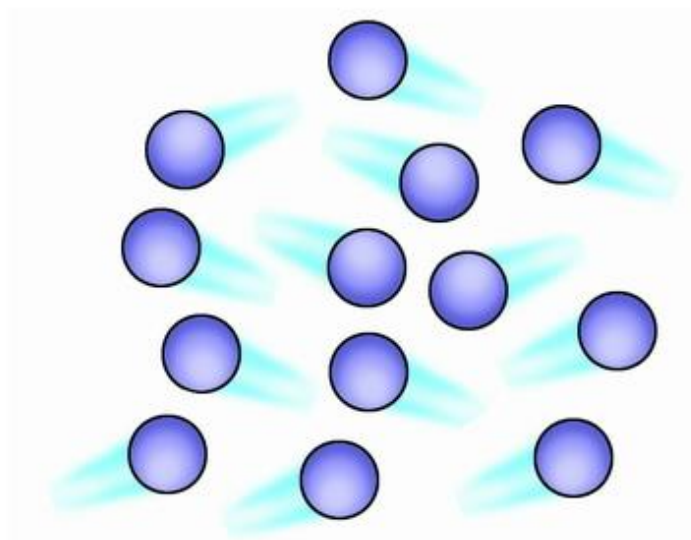
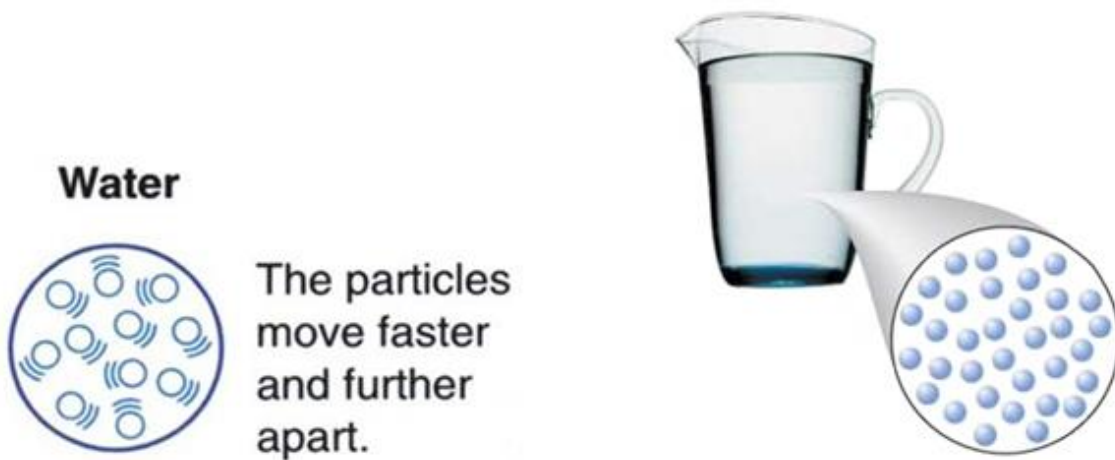
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Liquid

matter that has a definite volume
but no definite shape

Example: water

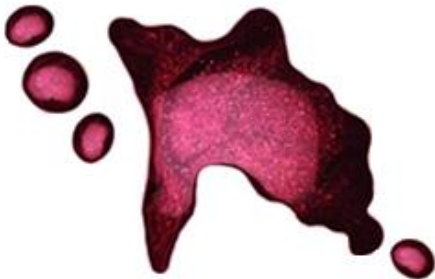
The particles are not as close
together as a solid



The particles move by sliding past each other

A liquid always takes the shape of its container

The volume always stays the same



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Gas

matter that has no definite shape or volume

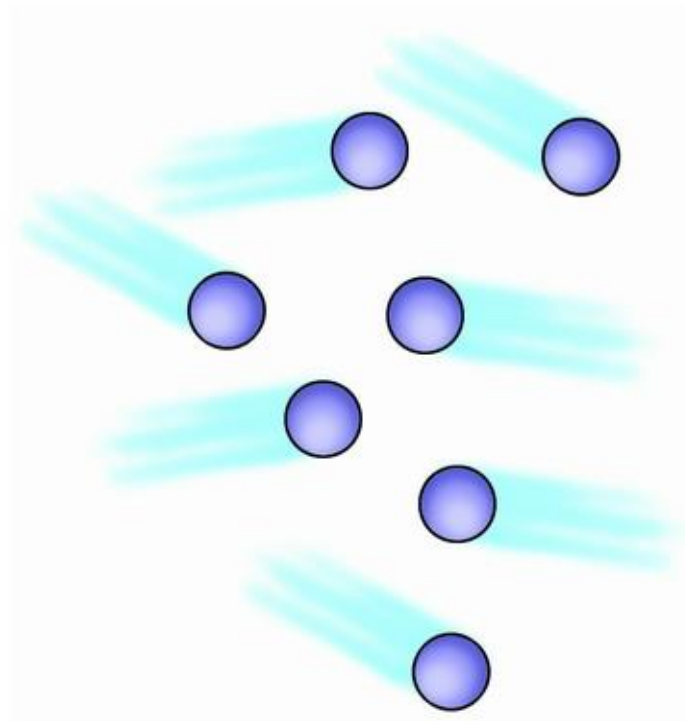
Example: water vapor

The particles in a gas are far apart and move faster than in a liquid

Water vapor

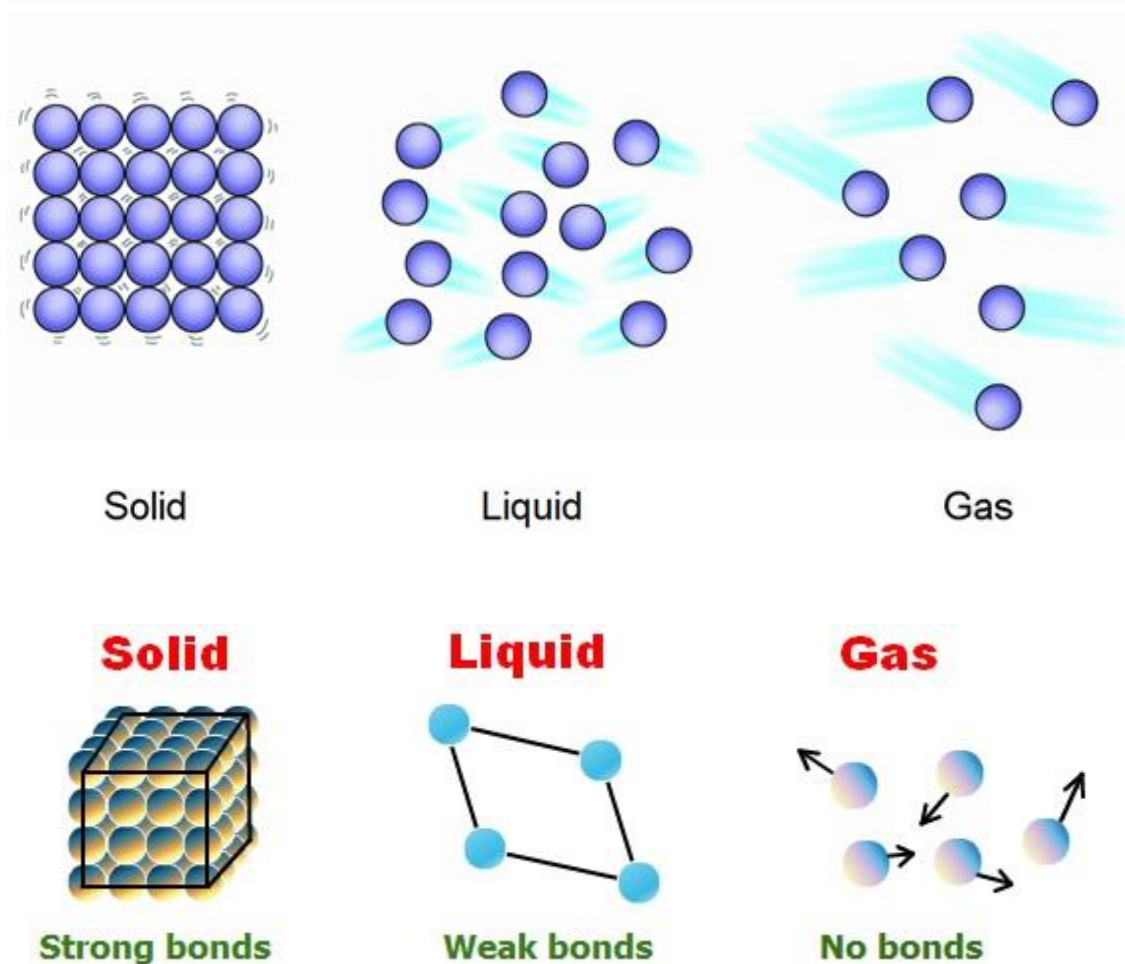


The particles are far apart and move very quickly and randomly.



The particles of a gas completely fill its container

<http://www.absorblearning.com/media/item.action?quick=10v>



<http://www.absorblearning.com/media/item.action?quick=17e>

<http://www.brainpop.com/science/matterandchemistry/stateofmatter/>

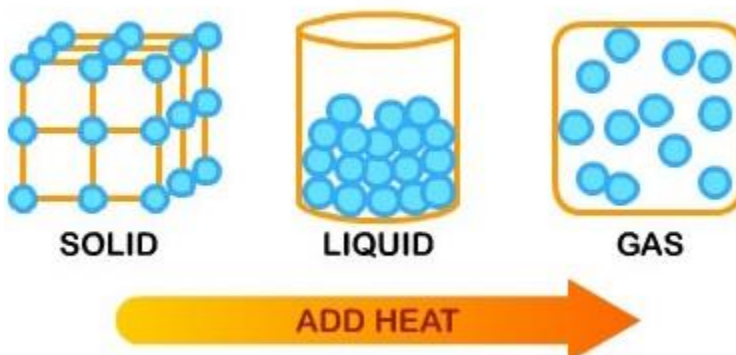
Learning Objective: In writing, SWBAT describe and give examples of changing states of matter, using academic language.

Changing states of matter

matter can change:

- from a solid to a liquid
- from a liquid to a gas
- from a gas to a liquid
- from a liquid to a solid

States of Matter

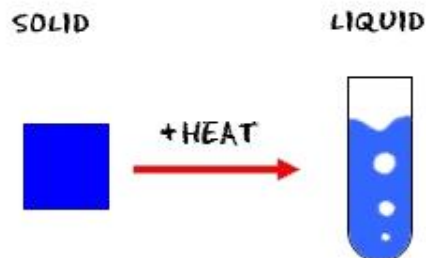


Melting

the process of a solid changing to a liquid

Example: solid ice melts into liquid water

HEAT is needed



The particles in the solid begin to move faster as it changes to a liquid

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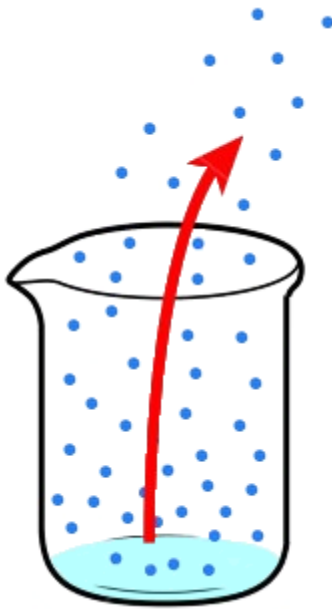
Evaporation

the process of a liquid changing to a gas

Example: liquid water is changed to water vapor

HEAT is needed

The particles in the liquid move very fast as it changes to a gas



LIQUID



+ HEAT



GAS



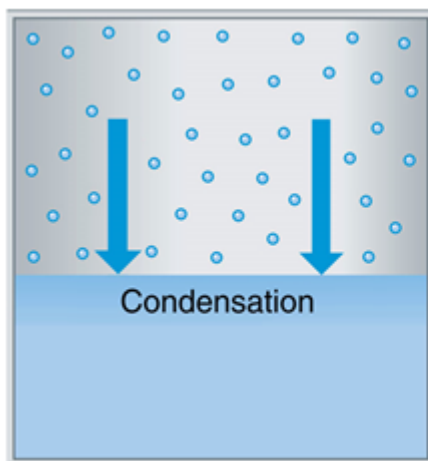
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Condensation

the process of a gas changing to a liquid

Example: when water vapor changes to liquid water

COOLING is needed



LIQUID



-HEAT



GAS



Freezing

the process of a liquid changing to a solid

Example: when liquid water changes to ice

COOLING is needed

SOLID



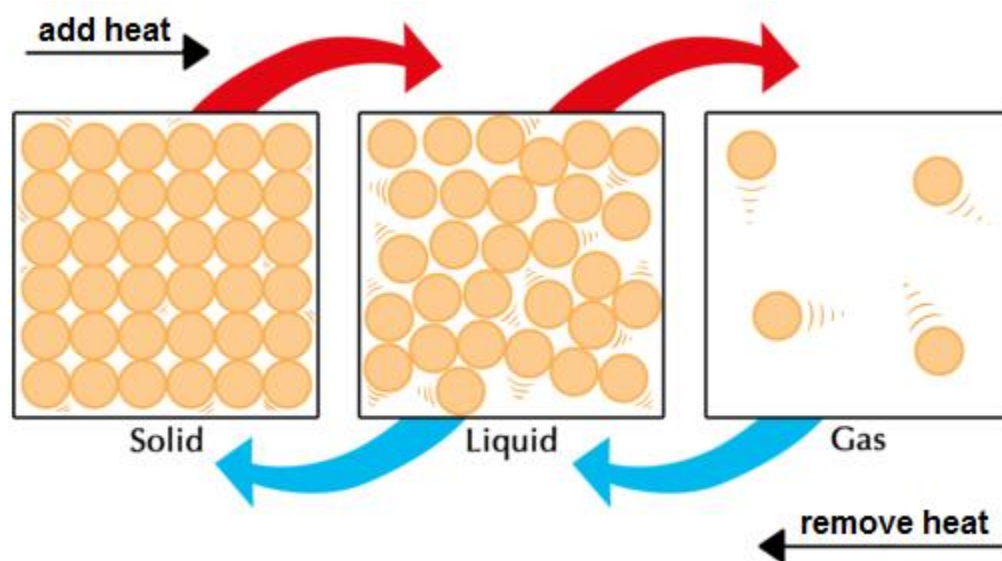
-HEAT



LIQUID



<http://www.brainpop.com/science/matterandchemistry/matterchangingstates/>



Nature of Matter

Check Your Understanding

Page 163

1. What words can you use to describe the color, odor, taste, or texture in the pictures?

The words you can use to describe the color, odor, taste or texture in the pictures are _____ for color, _____ for odor, _____ for taste, and _____ for texture.

2. Is juice a solid, liquid or gas?

Juice is a _____ .

3. What can your senses tell you about matter?

Your senses can tell you how matter _____ , _____ , _____ , _____ , and _____ .

4. What property of matter lets you tell the difference between salt and sugar?

The property of matter that lets you tell the difference between salt and sugar is _____ , because sugar _____ , and salt _____ .

Nature of Matter **Science Skill**

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1. In which state of matter are the particles closest together?

The particles of matter are closest together in a _____ .

2. In which state of matter are the particles farthest apart?

The particles of matter are farthest apart in a _____ .

3. Which states of matter would change shape if you put them into a bottle?

The states of matter that would change shape if you put them in a bottle are a _____ and a _____ .

Learning Objective: In writing, SWBAT compare and contrast physical and chemical properties, and give examples of each, using academic language.

Physical property

Examples of physical properties

property of a substance that can be measured or observed without changing the substance

- color
- odor
- mass
- volume
- shape
- state of matter

Chemical property

property of a substance that can be observed when a substance changes to a new substance

Examples of
chemical properties

- burning paper
- rust on metal



Nature of Matter

Check Your Understanding

Page 165

1. What are the three states of matter?

The three states of matter are _____ , _____ , and _____ .

2. What are physical properties? Give three examples.

*A physical property is a property _____ .
Three examples of physical properties are _____ , _____ , and _____ .*

3. What is a chemical property? Give two examples.

A chemical property is a property _____ .

Two examples of a chemical property are _____ and _____ .

4. Is a lump of clay still a solid if you can change the shape? Explain.

A lump of clay _____ still a solid if you change the shape because _____ .